APRIL/MAY 2023

CAEL34 — BASIC PHYSICS I

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is moment of inertia?

2. State Newton's law.

3. Define Young's modulus.

4. What are the three elastic constants?

5. Define the terminal velocity.

6. State Stoke's law.

7. Give the statement of second law of thermodynamics.

8. What is a reversible process?

9. What is time of reverberation?

10. What is absorption coefficient?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Obtain the moment of inertia of a circular ring.

Or

(b) Discuss the variation of g with altitude.

12. (a) Discuss the Young's modulus by non-uniform bending.

Or

(b) Explain the torsion in a wire.

13. (a) Explain the Oswald's viscometer.

Or

(b) Explain the excess of pressure inside a soap bubble.

14. (a) Describe the first jaw of thermodynamics.

Or

(b) Explain the irreversible process.

15. (a) Explain the factors effecting the acoustics of building.

Or

(b) Explain the uses of ultrasonic waves.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the determination of G by Boys method.

17. Explain the determination of rigidity modulus by static torsion.

18. Explain the determination of surface tension of a liquid by Jaegar's method.

19. Explain the determination of the thermal conductivity of a bad conductor by Lee's disc method.

20. Derive Sabine's formula.

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